

What is claimed is:

1 1. A monitoring system comprising:
2 a sensing subsystem having at least one sensing device
3 for generating at least one data stream; and
4 a processing subsystem for receiving and processing said
5 data stream, said processing subsystem including a memory,
6 said processing subsystem adapted to encrypt said at least one
7 data stream to form an encrypted data stream corresponding to
8 said at least one data stream, and being further adapted to
9 write said encrypted data stream to said memory.

1 2. The monitoring system of claim 1, wherein said at
2 least one data stream is a digital data bitstream.

1 3. The monitoring system of claim 1, wherein said
2 processing subsystem is adapted to read said encrypted data
3 from said memory, and to decrypt said encrypted data while
4 reading said encrypted data.

1 4. The monitoring system of claim 1, wherein said at
2 least one sensing device is a probe device adapted for partial
3 insertion into food.

1 5. The monitoring system of claim 1, wherein said
2 sensing subsystem includes a transmitter for transmitting said
3 at least one data stream, and wherein said processing
4 subsystem includes a receiver for receiving said at least one
5 data stream.

1 6. The monitoring system of claim 1, wherein said at
2 least one sensing device includes a temperature sensor and a
3 battery, and wherein said at least one data stream includes
4 data pertaining to said temperature sensor and data pertaining
5 to a power level of said battery.

1 7. The monitoring system of claim 1, wherein said
2 processing subsystem is adapted to at least one of either date
3 stamp or time stamp said data stream.

1 8. A monitoring system for monitoring food located at a
2 food serving or storage locations, said monitoring system
3 comprising:

4 a sensing subsystem including at least one temperature
5 sensing device for generating at least one data stream, said
6 at least one temperature sensing device adapted to be
7 partially disposed in food at said food serving or storage
8 location; and

9 a processing subsystem for receiving and processing said
10 data stream, said processing subsystem including a memory,
11 said processing subsystem adapted to encrypt said at least one
12 data stream to form an encrypted data stream corresponding to
13 said at least one data stream, and being further adapted to
14 write said encrypted data stream to said memory.

1 9. The monitoring system of claim 8, wherein said at
2 least one data stream is a digital data bitstream.

1 10. The monitoring system of claim 8, wherein said
2 processing subsystem is adapted to read said encrypted data
3 from said memory, and to decrypt said encrypted data while
4 reading said encrypted data.

1 11. The monitoring system of claim 8, wherein said at
2 least one sensing device is a probe device adapted for partial
3 insertion into food.

1 12. The monitoring system of claim 8, wherein said at
2 least one sensing device is a probe device adapted for partial
3 insertion into food, said probe device including:

4 a housing;

5 an elongated pin section extending from said housing; and

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7 a sensing element completely disposed in, and
encapsulated by said elongated pin section.

1 13. The monitoring system of claim 8, wherein said
2 sensing subsystem includes a transmitter for transmitting said
3 at least one data stream, and wherein said processing
4 subsystem includes a receiver for receiving said at least one
5 data stream.

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1 14. The monitoring system of claim 8, wherein said at
2 least one temperature sensing device includes a temperature
3 sensor and a battery, and wherein said at least one data
4 stream encodes a reading from said temperature sensor and a
5 power level of said battery.

1 15. The system of claim 8, wherein said at least one
2 sensing device includes a temperature sensor and a battery,
3 wherein said at least one data stream of said device includes
4 data corresponding to said temperature sensor, and data
5 corresponding to power level of said battery, wherein said
6 processing subsystem includes a display, and wherein said
7 processing subsystem is adapted to output on said display
8 graphical indicia indicating both a temperature and a battery
9 level associated with said at least one sensing device.

16. The monitoring system of claim 8, wherein said processing subsystem is adapted to at least one of either date stamp or time stamp said data stream.

17. The monitoring system of claim 8, wherein said processing subsystem includes a memory having an indexed hierarchical data storage structure, and wherein said processing subsystem is adapted to write said encrypted data stream to said indexed hierarchical data storage structure.

18. The monitoring system of claim 8, wherein said processing subsystem includes a memory having an indexed hierarchical data storage structure including at least one device index tree indexed by a device identifier and by date stamp data, and wherein said processing subsystem is adapted to write said encrypted data stream to said hierarchical data storage structure indexed by said device identifier and by said date stamp data.

19. The monitoring system of claim 18, wherein said processing subsystem is configured to analyze each received data stream to determine if said received data stream pertains to a sensing device newly added to said system, and wherein said processing system is further configured to establish a

6 new device index tree in said memory if said processing
7 subsystem determined based on said analysis that said
8 received data stream does pertain to a device newly added to
9 said system.

20. The monitoring system of claim 8, wherein said
sensing subsystem includes a sensing apparatus for sensing
characteristics of food stored in a plurality of food serving
or storage containers, said sensing apparatus comprising:

a central transmitter; and
a plurality of probes, each probe being adapted for
partial disposal in one of said containers, said each of said
probes being hard-wired to a central transmitter adapted to
transmit data from each of said plurality of probes.

21. The monitoring system of claim 20, further
comprising:

a member supporting at least one of said plurality of
food storage containers; and

at least one conductor forming said hard-wire connection
between said at least one of said probes and said transmitter,
said conductor being secured to said member so that said
conductor is minimally obtrusive to a food service agent
serving food.

10 22. A monitoring system for monitoring food stored in at
11 least one serving or storage container, said monitoring system
12 comprising:

13 a sensing subsystem including at least one sensing device
14 for generating at least one data stream, said at least one
15 sensing device adapted to be partially disposed in food of
16 said at least one temperature controlled serving container;
17 and

18 a processing subsystem for receiving and processing said
19 data stream.

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21 23. The system of claim 22, wherein said at least one
22 sensing device includes a temperature sensor and a battery,
23 and wherein said at least one data stream of said device
24 includes data corresponding to said temperature sensor, and
25 data corresponding to power level of said battery.

1 24. The system of claim 22, wherein said at least one
2 sensing device includes a temperature sensor and a battery,
3 wherein said at least one data stream of said device includes
4 data corresponding to said temperature sensor, and data
5 corresponding to power level of said battery, wherein said
6 processing subsystem includes a display, and wherein said
7 processing subsystem is adapted to output on said display

8 graphical indicia indicating both a temperature and a battery
level associated with said at least one sensing device.

1 25. The system of claim 22, wherein said at least one
2 sensing device includes a temperature sensor and a battery,
3 wherein said at least one data stream of said device includes
4 data corresponding to said temperature sensor, data
5 corresponding to power level of said battery, and data
6 corresponding to an identifier of said device.

1 26. The system of claim 22, wherein said at least one
2 sensing device is provided by a probe having an elongated pin
3 section and a temperature sensor disposed in said pin section.

1 27. The monitoring system of claim 22, wherein said
2 processing subsystem is adapted to at least one of either date
3 stamp or time stamp said data stream.

1 28. The monitoring system of claim 22, wherein said
2 processing subsystem includes a memory having an indexed
3 hierarchical data storage structure, and wherein said
4 processing subsystem is adapted to write said encrypted data
5 stream to said hierarchical data storage structure.

1 29. The monitoring system of claim 22, wherein said
2 processing subsystem includes a memory having an indexed
3 hierarchical data storage structure including at least one
4 device index tree indexed by a device identifier and by date
5 stamp data, and wherein said processing subsystem is adapted
6 to write said encrypted data stream to said indexed
7 hierarchical data storage structure indexed by said device
8 identifier and by said date stamp data.

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1 30. The monitoring system of claim 29, wherein said
2 processing subsystem is configured to analyze each received
3 data stream to determine if said received data stream pertains
4 to a sensing device newly added to said system, and wherein
5 said processing system is further configured to establish a
6 new device index tree in said memory if said processing
7 subsystem determined based on said analysis that said
8 received data stream does pertain to a device newly added to
9 said system.

31. The monitoring system of claim 22, wherein said
2 processing subsystem includes a memory, said processing
3 subsystem adapted to encrypt said at least one data stream to
4 form an encrypted data stream, and being further adapted to
5 write said encrypted data stream to said memory.

6 32. The monitoring system of claim 22, wherein said
7 processing subsystem includes a receiver, a processor, and a
8 memory, wherein said receiver is configured to encode said at
9 least one data stream to create an encoded data stream, and
10 wherein said processing subsystem is further adapted to decode
11 said encoded data stream.

1 33. The monitoring system of claim 31, wherein said
2 processing subsystem includes a receiver, a processor, and a
3 memory, wherein said receiver is configured to encode said at
4 least one data stream to create an encoded data stream, and
5 wherein said processing subsystem is further adapted to decode
6 said encoded data stream.

2 34. The monitoring subsystem of claim 22, wherein said
3 processing subsystem includes a display and a memory, wherein
4 said processing system is adapted to output on said display
5 graphical indicia indicating each of said sensing devices
which has been connected to said system.

1 35. The monitoring subsystem of claim 22, wherein said
2 processing subsystem includes a display and a memory, wherein
3 said processing system is adapted to output on said display
4 graphical indicia indicating each of said sensing devices
5 which is currently logging data.

1 36. The monitoring subsystem of claim 22, wherein said
2 processing subsystem includes a display and a memory, wherein
3 said processing system is adapted to execute a polling routine
4 wherein said processing subsystem analyzes the content of data
5 in said memory to determine the identity of each sensing
6 device included in said system, and to determine which of said
7 sensing devices are currently logging data, wherein said
8 processing subsystem is adapted to output on said display
9 graphical indicia responsive to said polling routine
10 indicating each of said sensing devices which has been
11 connected to said system, and to further output on said
12 display a logging icon for each device which is currently
13 logging data.

1 37. The monitoring system of claim 22, wherein said
2 sensing subsystem includes a sensing apparatus for sensing
3 characteristics of food stored in a plurality of food serving
4 or storage containers, said sensing apparatus comprising:

5 a central transmitter; and

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7 a plurality of probes, each probe being adapted for
8 partial disposal in one of said containers, said each of said
9 probes being hard-wired to a central transmitter adapted to
transmit data from each of said plurality of probes.

1 38. The monitoring system of claim 37, further
2 comprising:

3 a member supporting at least one of said plurality of
4 food storage containers; and

5 at least one conductor forming said hard-wire connection
6 between said at least one of said probes and said transmitter,
7 said conductor being secured to said member so that said
8 conductor is minimally obtrusive to a food service agent
9 serving food.

1 39. A sensing apparatus for sensing characteristics of
2 food stored in a plurality of food serving or storage
3 containers, said sensing apparatus comprising:

4 a central transmitter; and

5 a plurality of probes, each probe being adapted for
6 partial disposal in one of said containers, said each of said
7 probes being hard-wired to a central transmitter adapted to
8 transmit data from each of said plurality of probes.

1 40. The sensing apparatus of claim 39 further
2 comprising:

3 a member supporting at least one of said plurality of
4 food storage containers; and

5 at least one conductor forming said hard-wire connection
6 between said at least one of said probes and said transmitter,
7 said conductor being secured to said member so that said
8 conductor is minimally obtrusive to a food service agent
9 serving food.

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1 41. The sensing apparatus of claim 40, wherein said at
2 least one conductor secured to said member includes a
3 flattened conductor housing.

1 42. The apparatus of claim 39, further comprising a
2 sensing element, wherein at least one of said probes includes
3 an elongated pin section housing for disposal in a food
4 product, said elongated pin section substantially completely
5 encapsulating said sensing element.

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